

# Dissipative Operators in Krein Space. Invariant Subspaces and Properties of Restrictions

A. A. Shkalikov

We prove that a maximal dissipative operator in Krein space has a maximal nonnegative invariant subspace provided that the operator admits a matrix representation and the upper right operator in this representation is compact relative to the lower right operator. Under weaker assumptions this result was obtained (in increasing order of generality) by Pontrjagin, Krein, Langer and Azizov.

The main novelty is that we start the investigation of properties of the restrictions onto invariant subspaces. In particular, we find sufficient conditions for the restrictions to be generators of holomorphic or  $C_0$ - semigroups.